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(71) Applicants

William Ralph Coleman

Ivens

The Garden House

Sunderland Hall

Galashiels

Selkirkshire

Scotland

Elizabeth Ivens

The Garden House

Sunderland Hall

Galashiels

Selkirkshire

Scotland

(72) Inventors

William Ralph Coleman

Ivens

Elizabeth Ivens

(74) Agent and/or Address for
Service

J Y & G W Johnson

Furnival House

14-18 High Holborn

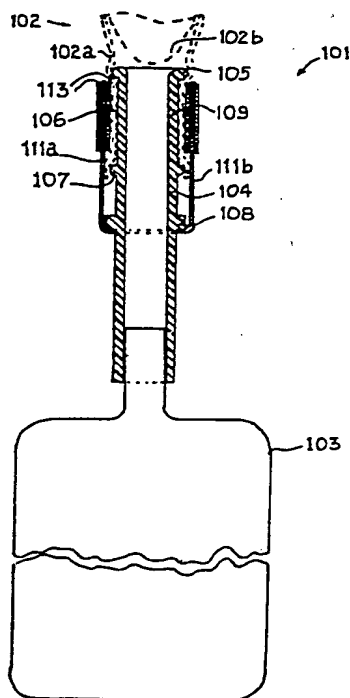
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(54) A penial urine ducting device

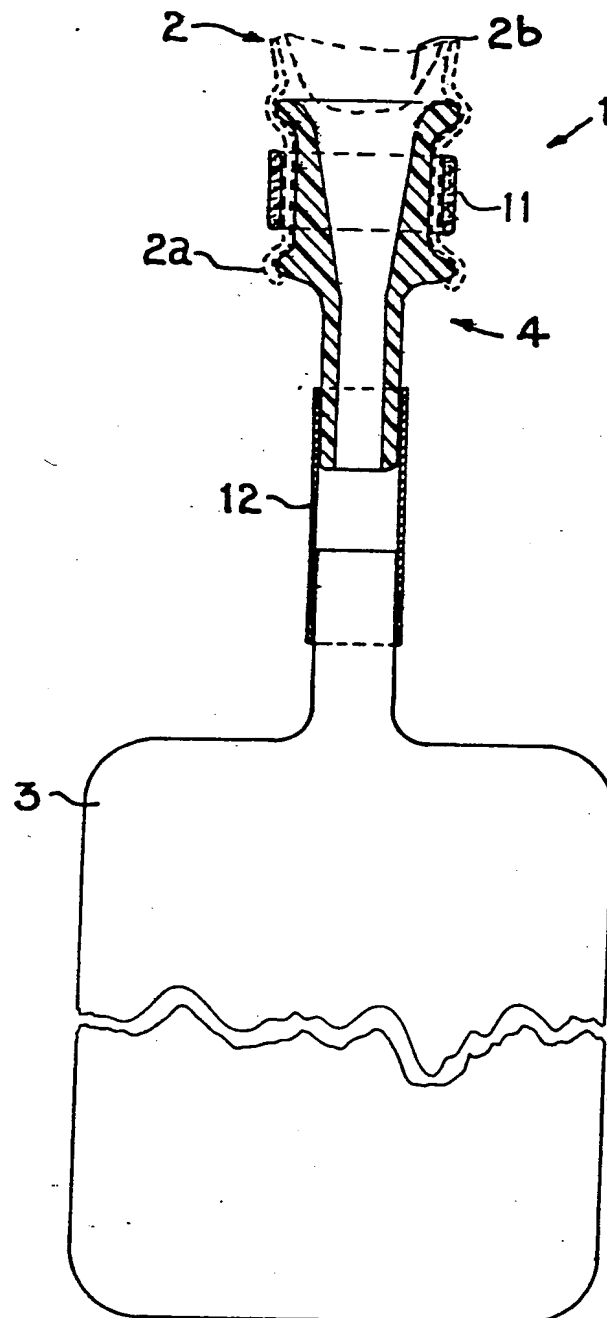
(57) A penial urine ducting (101) comprises a tubular member (104) having a smooth or smoothly contoured external seating surface (106) and an enlarged, flanged inlet end (105).

In use of the device (101), the foreskin (102a) of a user's penis (102) is positioned over the flanged inlet end (105) and against the external seating surface (106) and is then clamped against the seating surface by means of a detachable securing band (113).

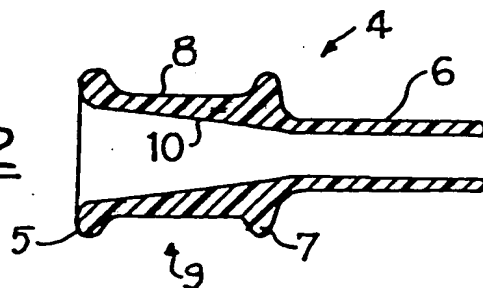
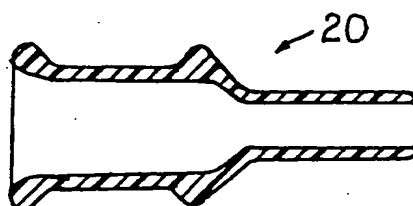
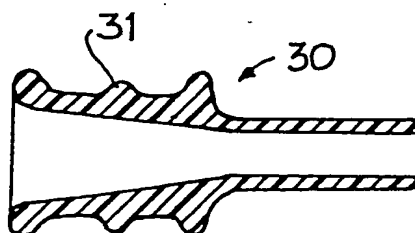
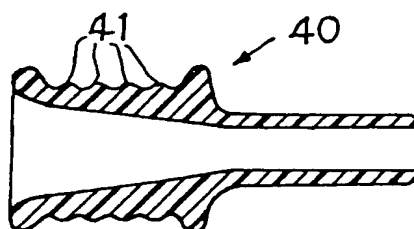
FIG. 6



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FIG. 1

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FIG. 2FIG. 3FIG. 4FIG. 5

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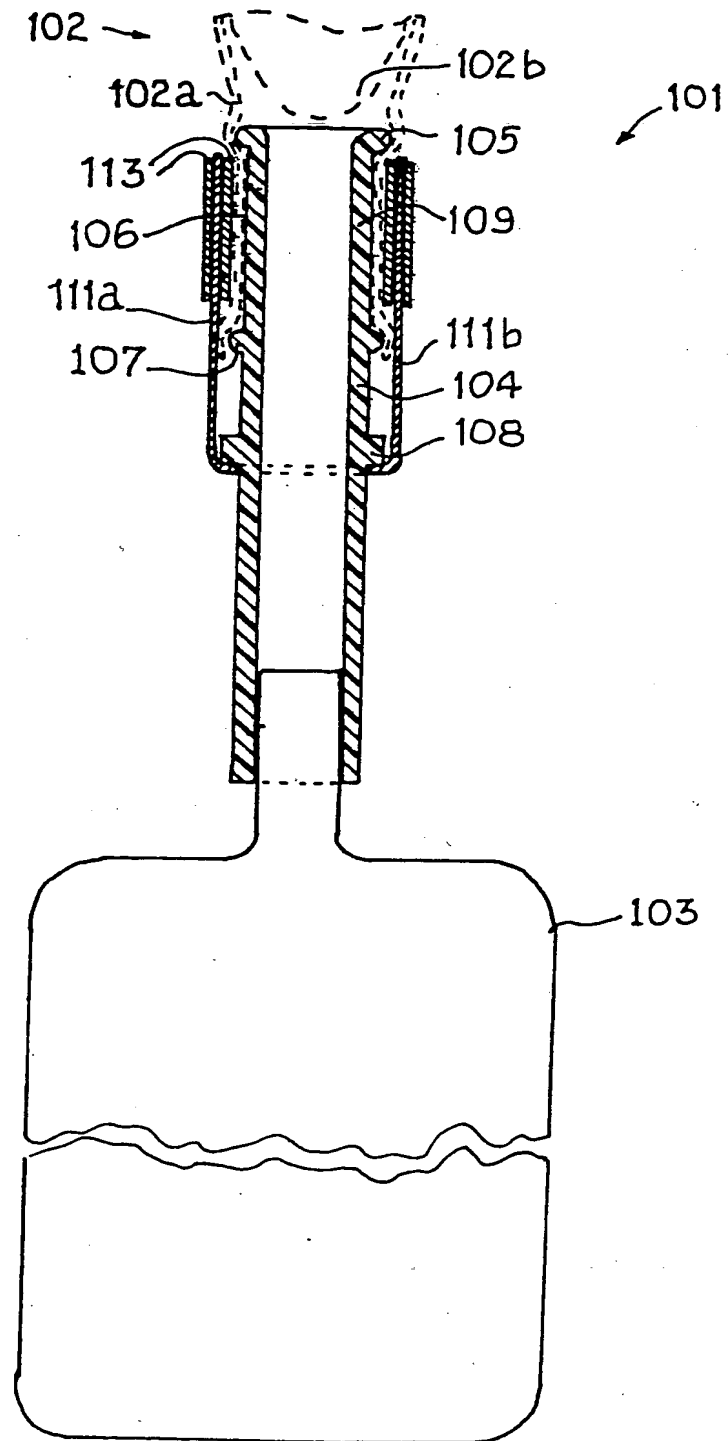
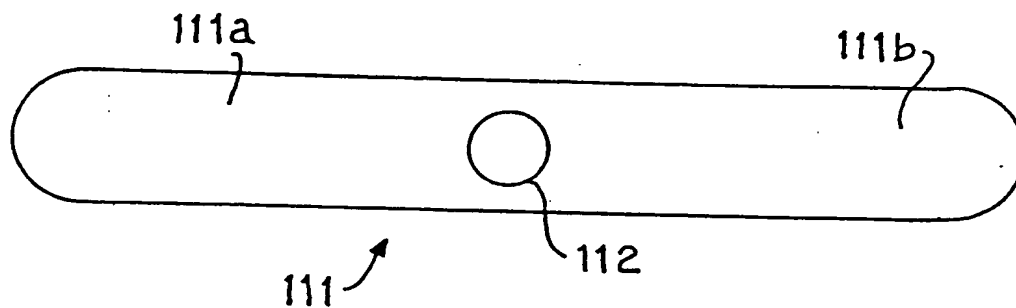
FIG. 6

FIG. 7



SPECIFICATION

A penial urine ducting device

5 This invention relates to a penial urine ducting device for an incontinent male for conducting urine from a penis to a collecting vessel, e.g. a collecting bag. The invention also relates to a method of detachably attaching a penial
10 urine ducting device to a penis.

According to one aspect of the invention a penial urine ducting device comprises a tubular member having a smooth or smoothly contoured external seating surface and an
15 enlarged, flanged inlet end, whereby the device is attached to a penis by positioning the said flanged inlet end adjacent to the head of the penis, positioning the foreskin of the penis over the said flanged inlet end and against the
20 said external seating surface, and clamping the foreskin of the penis against the said external seating surface by means of a detachable securing band, the tubular member having sufficient rigidity to support the foreskin when the latter is clamped against the
25 external seating surface.

The tubular member is conveniently semi-rigid and flexible. The tubular member must have sufficient rigidity to support the foreskin when the latter is clamped between the external seating surface and the detachable securing band. Preferably the tubular member is made of a semi-rigid, flexible plastics material, e.g. silicone rubber material.

35 The securing band may be of any suitable material. Typically the band comprises adhesive tape, for example elastic adhesive plaster.

Preferably the said external seating surface is smoothly contoured to the external surface of the flanged inlet end and preferably has a circular cross-section. In particular the external seating surface may be cylindrical or may have a varying axial circular cross-section, e.g. an undulating surface.

45 Suitably the tubular member has an outlet end portion for connection directly to, indirectly to, or integrally with a urine collecting vessel.

Typically the said external seating surface is positioned between the said flanged inlet end and an additional flange intermediate the said flanged inlet end and an outlet end of the device. In use the foreskin is arranged to extend over the said additional flange.

55 Additional securing means may be provided for detachably securing the device to a wearer's penis. Conveniently said additional securing means comprises strap means connected to the tubular member between the external seating surface and an outlet end of the device, portions of the strap means being designed, in use, to be sandwiched between at least one turn of the detachable securing band and the external seating surface. The
65 strap means may be integrally connected to

the tubular member. Alternatively, however, the strap means may be detachably connected to the tubular member. For example the strap means may comprise an apertured strap, the
70 outlet end of the tubular member being inserted through the aperture and the apertured strap being drawn up against a further flange, acting as a step, on the tubular member. The free end portions of the apertured strap can
75 then be positioned on opposite sides of the external seating surface.

According to another aspect of the invention there is provided a method of detachably attaching to a penis a penial urine ducting
80 device in the form of a tubular member having a smooth or smoothly contoured external seating surface and an enlarged, flanged inlet end, the method comprising positioning the said flanged inlet end adjacent the head of the
85 penis, drawing the foreskin of the penis over the said flanged inlet end so as to position the foreskin against the said external seating surface, and applying a detachable securing band around the foreskin to clamp the foreskin to
90 the external seating surface.

Preferably the head of the penis is spaced from the flanged inlet end of the tubular member when the foreskin is clamped to the external seating surface.

95 Suitably strap means with end portions are connected, e.g. detachably, to the tubular member, the said end portions being sandwiched between the foreskin and at least one turn of the securing band. Preferably the said
100 end portions are clamped between adjacent turns of the securing band, one or more turns of the securing band being wound around the foreskin prior to sandwiching of the foreskin.

The method according to the invention is intended to provide an at least substantially leakproof seal between the tubular member and the penial foreskin. The tubular member is suitably provided with an outlet end portion designed to be detachably connectible to a
110 urine collecting bag. The device can easily be applied and removed personally by the wearer and, by providing the tubular member with smoothly contoured surfaces, the device is comfortable to wear.

115 Embodiments of the invention will now be described by way of example, with reference to the accompanying drawings, in which:—

Figure 1 is a sectional view of one embodiment of a penial urine ducting device applied
120 to a penis and detachably connected to a urine collecting bag.

Figure 2 is a sectional view of the tubular member of the device shown in *Fig. 1*.

Figures 3 to 5 are sectional views of alternative embodiments of tubular members of penial urine ducting devices according to the invention.

Figure 6 is a sectional view of a yet further embodiment of a penial urine ducting device
130 applied to a penis and detachably connected

to a urine collecting bag, and

Figure 7 is a view of part of the penial urine ducting device shown in Fig. 6.

Fig. 1 shows one embodiment of a penial urine ducting device according to the invention and generally designated by the reference numeral 1. The device 1 is shown attached to a penis, generally designated by the reference numeral 2, and a disposable urine collecting bag 3, the device 1 serving to duct urine from the penis 2 to the collecting bag 3.

The penial urine ducting device 1 comprises a tubular member 4 (see Fig. 2) moulded in one-piece of a semi-rigid, yet flexible material, typically silicone rubber, and having a flanged inlet end portion 5, a cylindrical outlet end portion 6, an intermediate flange 7 connected to the outlet end portion 6, and a seating portion 8 connecting the flanged inlet end portion 5 to the flange 7. The portions 5, 7 and 8 provide a bobbin-like part, generally designated 9, having a bore 10 which tapers inwardly towards the outlet end portion 6.

The external surface of the seating portion 8 is of circular cylindrical form and is connected to the flanged inlet end portion 5 and the intermediate flange 7 by rounded or smoothly contoured surfaces. Both the inlet end portion 5 and the intermediate flange 7 are also provided with rounded or smoothly contoured surfaces.

In use the tubular member 4 is attached to the penis 2 by positioning the flanged inlet end portion 5 inside the foreskin 2a of the penis so that the head 2b of the penis is brought close to the smoothly contoured surface of the flanged inlet end portion 5 defining the flared opening of the bore 10. The foreskin 2a is then pulled over smooth surfaces of at least part of the bobbin-like part 9 to cover the inlet end portion 5, the external surface of the seating portion 8 and at least part of the intermediate flange 7. With the foreskin 2a so positioned, adhesive tape 11, e.g. elastic adhesive plaster, is wrapped around the foreskin 2a so as to encircle the seating portion 8 and clamp the foreskin 2a to the external surface of the seating portion 8. In this position there is a small gap between the flanged inlet end portion 5 and the penial head 2b. The tubular member 4 is detachably connected to the urine collecting bag 3 by a short length of rubber tubing 12.

In order to detach the tubular member 4 from the penis 2, the adhesive tape 11 is removed from around the foreskin 2a enabling the bobbin-like part 9 to be removed from its position inside the foreskin adjacent the penial head 2b.

When the tubular member 4 is attached to the penis 2 a substantially leakproof joint is provided between the external surface of the tubular member and the contacting inner surface of the foreskin 2a. In particular, a primary liquid seal is provided between the

flanged inlet end portion 5 and the contacting surrounding foreskin 2a and a secondary liquid seal is provided between the smooth external surface of the seating portion 8 and the foreskin 2a which is held in contact with the seating portion 8 by the tape 11. It is not essential for liquid-tight sealing for the inlet end portion 5 to contact the penis head 2b and it is desirable during attachment of the device for the inlet end portion 5 to be spaced a short distance from the penis head 2b.

If a pull of sufficient force is applied to the tubular member it is possible to pull the latter away from, and out of liquid sealing contact with, the penis. Since it is possible for such force to be exerted by the urine collecting bag 3 when at least partially filled, it is advisable for the bag 3 to be supported on the wearer. Typically such support can be provided by taping the bag 3 to a waistband (not shown) supported around the wearer.

By way of example, the tubular member 4 has an overall length of 5.75 cm, the bobbin-like part 9 has a length of 2.75 cm, the flanged inlet end portion 5 and the intermediate flange 7 have maximum external diameters of 2.5 cm and the seating portion 8 has an external diameter of 1.75 cm.

The tubular member 4 may be of a different form and three alternative designs of tubular member, designated 20, 30 and 40, are shown in Figs. 3, 4 and 5, respectively. In particular, the tubular member 20 has a modified internal bore shape, and the tubular members 30 and 40 have seating portions of non-cylindrical form. Thus the seating portion of the tubular member 30 is provided with a single, smoothly contoured flange 31 of smaller maximum diameter than that of its flanged inlet end portion, and the seating portion of the tubular member 40 is provided with a plurality of smoothly contoured flanges 41, each of smaller maximum diameter than that of its flanged inlet end portion, providing the external surface of the seating portion with a bellows-like appearance. Of course the internal shape of the bore of each tubular member 20, 30, 40 may be different. For example, the tubular members 30, 40 may have bores similar to that of tubular member 20.

Of course the tubular member could be modified in other ways, e.g. by dispensing with the intermediate flange 7, although it is considered important to employ a flanged inlet end portion 5 having a maximum external cross-section larger than the maximum external cross-section of the seating portion 8. It is also considered important for reasons of user comfort to employ smooth or smoothly contoured surfaces for all parts of the tubular member designed to contact, in use, parts of the wearer's penis.

Although it is preferred that the tubular member 4 is made of silicone rubber material it could be made of other flexible materials

e.g. plastics materials, which have sufficient rigidity to prevent the tubular member from collapsing when the tape 11 is wound there-around.

5 Fig. 6 shows another embodiment of a penial urine ducting device according to the invention and generally designated by the reference numeral 101. The device 101 is shown attached to a penis 102, having a foreskin 102a and a head 102b, and a disposable collecting bag 103. The device 101 is similar in many respects to the device 1 shown in Fig. 1 and only the features of difference will be described in detail herein-

15 after.
The device 101 has a tubular member 104 provided with an inlet end defined by a first sealing flange 105, an outlet end connected to the bag 103, a second sealing flange 107 between the inlet and outlet ends and a further flange 108 positioned between the flange 107 and the outlet end of the tubular member. A smooth, annular seating surface 106 is defined between the smooth surfaced sealing flanges 105 and 107 and defines with the latter a bobbin-like part 109. The bore of the tubular member 104 has a substantially constant diameter throughout its length apart from at the inlet end where a flared, e.g.

30 frusto-conical, opening is provided.
A strap 11 (see Fig. 7) made, for example, of plastics material or silicone rubber material, is detachably connected to the tubular member 104. The strap 111 has opposite end portions 111a and 111b and a centrally located aperture 112 having a smaller diameter than that of the flange 108. The outlet end of the tubular member 104 is inserted through the aperture 112 and the strap 111 is moved along the tubular member 104 until its progress is blocked by the flange 108.

In use the tubular member 104 is positioned within the foreskin 102a so that a small gap is left between the sealing flange 105 and the penis head 102b. The foreskin 102a is pulled over the seating surface 106 and is positioned to just cover the second sealing flange 107 but not to reach the flange 108. With the foreskin so positioned, adhesive tape 113, e.g. elastic adhesive tape, or other securing band, is wrapped one or more times around the foreskin 102a so as to encircle the seating surface 106. The two strap end portions 111a and 111b are then pulled towards the penis and positioned over the encircling tape 113. Whilst retaining tension on the strap end portions, the adhesive tape 113 is wrapped firmly one or more further times around the seating surface 106 to sandwich the strap end portions 111a and 111b between adjacent turns of the adhesive tape.

In order to detach the tubular member 104 from the penis 102, the adhesive tape 113 and strap end portions 111a and 111b are

released from around the foreskin enabling the bobbin-like part 109 to be withdrawn.

As with the device 1, the device 101 provides a substantially leakproof joint between the external surface of the sealing flange 105 and the inside of the foreskin 102a. A liquid seal is also provided by the external seating surface 106 and the second sealing flange 107 and the inside of the foreskin 102a.

75 By way of example only, the tubular member 104 has a length of 10 cm, the bobbin-like part 109 has a length of 3.3 cm, and the flange 108 is spaced 4.5 cm from the inlet end. The tubular member has an external diameter of 1.2 cm (apart from the flanges 105, 107 and 108 which have a diameter of 1.7 cm) and an internal diameter of 0.8 cm. The sealing flanges 105 and 107 have an axial width of 0.3 cm and the flange 108 has an axial width of 0.5 cm.

As mentioned previously the strap 111, typically made of a silicone rubber material, may be formed integrally with the tubular member 104 instead of being detachably connected thereto. Other forms of detachable strap may also be employed.

As with device 1, it is preferred, for reasons of user comfort and sealing efficiency, to employ smooth or smoothly contoured surfaces for all parts of the tubular member designed to contact, in use, parts of the wearer's penis.

In particular the device 101 and other embodiments according to the invention have the following advantages:—

1. The normal process of expelling urine from the body is not interfered with.
2. In view of (1), the risk of infection of the urethra is minimised.
- 105 3. The device can be applied and removed by the wearer himself, using only normal hygienic methods.
4. Unlike other methods, there is no leakage when the device is correctly applied.
- 110 5. The device can be worn over considerable periods with complete comfort when correctly applied.

6. For night use, a longer pipe and bottle can be attached instead of, or in addition to, the disposable bag.

Finally it should be realised that the strap 111, described herein with reference to the penial urine ducting device shown in Figs. 6 and 7, can also be employed with advantage in each of the other embodiments of ducting device described with reference to Figs. 1 and 2, 3, 4 and 5. In these cases it would of course be necessary to modify the designs illustrated either by providing a further flange (e.g. similar to the flange 108) for retaining the strap 111 on the device or by forming an integral connection of the strap to the tubular member of the device.

1. A penial urine ducting device comprising a tubular member having a smooth or smoothly contoured external seating surface and an enlarged, flanged inlet end, whereby the device is attached to a penis by positioning the said flanged inlet end adjacent to the head of the penis, positioning the foreskin of the penis over the said flanged inlet end and against the said external seating surface and clamping the foreskin of the penis against the said external seating surface by means of a detachable securing band, the tubular member having sufficient rigidity to support the foreskin when the latter is clamped against the external seating surface.

2. A device according to claim 1, in which the tubular member is semi-rigid and flexible.

3. A device according to claim 1 or 2, in which the tubular member is made of a semi-rigid, flexible plastics material.

4. A device according to any of the preceding claims, in which the securing band comprises adhesive tape.

5. A device according to any of the preceding claims, in which the said external seating surface is smoothly contoured to the external surface of the flanged inlet end.

6. A device according to claim 5, in which said external seating surface has a circular, cross-section.

7. A device according to claim 5 or 6, in which the external seating surface is cylindrical.

8. A device according to claim 6, in which the external seating surface has a circular cross-section the diameter of which varies in the axial direction.

9. A device according to any of the preceding claims, in which the tubular member has an outlet end portion for connection directly to, indirectly to, or integrally with a urine collecting vessel.

10. A device according to any of the preceding claims, in which the said external seating surface is positioned between the said flanged inlet end and an additional flange intermediate the said flanged inlet end and an outlet end of the device.

11. A device according to any of the preceding claims, comprising additional securing means for detachably securing the device to a wearer's penis.

12. A device according to claim 11, in which said additional securing means comprise strap means connected to the tubular member between the external seating surface and an outlet end of the device, portions of the strap means being designed, in use, to be sandwiched between at least one turn of the detachable securing band and the external seating surface.

13. A device according to claim 12, in which the strap means are integrally connected to the tubular member.

14. A device according to claim 12, in

which the strap means are detachably connected to the tubular member.

15. A device according to claim 14, in which the strap means comprise an apertured strap, the outlet end of the tubular member being inserted through the aperture and the apertured strap being drawn up against a further flange, acting as a stop, on the tubular member.

16. A penial urine ducting device constructed and arranged substantially as herein described with reference to Figs. 1 and 2, Fig. 3, Fig. 4 or Fig. 5 of the accompanying drawings.

17. A penial urine ducting device constructed and arranged substantially as herein described with reference to Figs. 6 and 7 of the accompanying drawings.

18. A method of detachably attaching to a penis a penial urine ducting device in the form of a tubular member having a smooth or smoothly contoured external seating surface and an enlarged, flanged inlet end, the method comprising positioning the said flanged inlet end adjacent the head of the penis, drawing the foreskin of the penis over the said flanged inlet end so as to position the foreskin against the said external seating surface, and applying a detachable securing band around the foreskin to clamp the foreskin to the external seating surface.

19. A method according to claim 18, in which the head of the penis is spaced from the flanged inlet end of the tubular member when the foreskin is clamped to the external seating surface.

20. A method according to claim 18 or 19, in which strap means with end portions are connected to the tubular member, the said end portions being sandwiched between the foreskin and at least one turn of the securing band.

21. A method according to claim 20, in which the said end portions are clamped between adjacent turns of the securing band, one or more turns of the securing band being wound around the foreskin prior to sandwiching of the foreskin.

